Appendix A

Procedure Overviews for the Staging, Storage, Sizing, and Treatment Facility

Decontamination Building Inspection

Preparer	Tracking No.
R. C. Shilkett	8.5
Date	Revision
April 5, 2004	2

1. PURPOSE

This overview describes procedures to perform inspections to identify problems with operating the decontamination building and ancillary equipment on a weekly basis, after storms, and after other events that might affect safe operation. This will be integrated with existing inspection procedures.

Specifically, these activities include the following:

- Ensure the integrity of the identified systems and components through a regular inspection process
- Identify necessary repairs or response actions
- Maintain documentation to verify that all inspection requirements and identified actions have been completed.

2. SCOPE AND APPLICABILITY

This inspection is applicable to the decontamination building; process exhaust systems; tank system consisting of the concrete P-trap, oil/water separator, and pump station; contaminated equipment pad; treatment units; and decontamination equipment.

3. REGULATORY REQUIREMENTS

The following regulatory requirement is cited from 40 *Code of Federal Regulations* (CFR) 264.1101(c)(4): “Inspect and record in the facility’s operating record, at least once every seven days, data gathered from monitoring equipment and leak detection equipment as well as containment building and the area immediately surrounding the containment building to detect signs of releases of hazardous waste.”

4. EQUIPMENT

None identified.

5. IMPLEMENTATION

Inspections will be performed weekly or following a significant rain, snow, windstorm, or other event that could affect the safe operation of the decontamination building.

Before the inspection tour, the inspector will review the previous inspection report to note any deficiencies. The operating log for the timeframe since the previous inspection will be reviewed for any equipment status changes.

A checklist format will be developed that will address, but will not be limited to, the following items:

- Decontamination building
  - Is the building exterior (roof, walls, door) in good condition?
  - Are floors clean and dry?
  - Is there any evidence of floor surface deterioration, cracks, gaps, or corrosion?
  - Are access doors operational and door seals in good condition and able to contain fugitive dust emissions?
  - Is the fire protection riser valved correctly and does it have the proper air pressure? Are there any air leaks obviously noticeable?
  - Does the building temperature indicate that the heating system is functional (cold weather only)?
  - Is there any evidence of waste being tracked out of the building by personnel or equipment?
  - Verify that building signage for safety and access requirements are readable and in place.
- Process exhaust systems
  - Are the process exhaust systems for the decontamination bay and treatment area operational?
  - Are the instrumentation readings for differential pressure across filter banks within the acceptable range?
  - When the Wheelabrator system is operating, verify that the differential pressure is normal and the monitor/controller does not indicate problems with the air diagrams.
- Decontamination building tank system
  - Does leak-detection instrumentation indicate the evidence of a leak in the concrete P-trap, oil/water separator, or pump station?
- Contaminated equipment pad
  - Is there any evidence of surface deterioration, cracks, gaps, or corrosion?
  - Is the grating over the drainage trench free of debris so that run-off will not pool on the slab?

- Treatment unit
    - Is the treatment unit operable (no out-of-service tags)?
    - Is there any evidence of dust leaking out of the unit?
    - Is there any evidence of corrosion damage to the treatment unit?
    - Is there any evidence of hydraulic or water leaks from the treatment unit?
    - Is there any evidence of treatment chemical or waste spills?
    - Are treatment chemicals properly labeled and stored?
- Decontamination equipment.
    - Is the decontamination equipment operable (no out-of-service tags)?
    - Is there any evidence of leaks from the equipment?
    - Are required tools properly stored?
    - Are decontamination chemicals properly labeled and stored?

Any deficiencies/problems will be noted on the checklist. Actions taken to correct those problems also will be recorded on the checklist or accompanying documentation. The inspection document will be signed and dated by the individual performing the inspection.

Appropriate response actions must be taken for any noted inspection deficiency. Response actions shall be implemented by notifying the INEEL CERCLA Disposal Facility Complex operations manager at the end of the inspection. The operations manager shall be responsible for implementing response actions upon notification. Response times will be based on the severity of the issues identified. The facility manager or designee will review and approve the inspection report by close of business on the day of inspection.

6. REFERENCES

40 CFR 264.1101, 2004, "Design and Operating Standards," *Code of Federal Regulations*, Office of the Federal Register, June 2004.

7. RECORDS

The following are records:

- Completed inspection reports
- Maintenance or response action documentation.

Debris Treatment

Preparer	Tracking No.
K. K. Packard/R. C. Shilkett	4.3.5
Date	Revision
April 5, 2004	1

1. PURPOSE

The purpose of this procedure is to provide the operating instructions for the INEEL CERCLA Disposal Facility's debris treatment process.

2. SCOPE AND APPLICABILITY

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site remediation or deactivation, decontamination, and decommissioning (DD&D) debris meeting the definition of hazardous debris or debris that lacks adequate process knowledge and characterization data to determine it is not hazardous debris is treated by this procedure. Debris is contained in engineered plywood or metal box assemblies.

3. REGULATORY REQUIREMENTS

The following is a regulatory requirement:

- 40 *Code of Federal Regulations* (CFR) 268.45, "Treatment Standards for Hazardous Debris."

1. EQUIPMENT

The following equipment will be used:

- Debris treatment will be performed in the treatment area or the decontamination bay of the decontamination building, as space permits
- Portable grout hopper/pump assembly
- Hand power tool for cutting holes in boxes
- Miscellaneous hand tools
- Portland-cement based grout for microencapsulation
- Debris box brace assembly
- Forklift
- Scale for weighing debris boxes pre- and post-treatment (can use truck scale).

Potential grout mixes for the debris treatment process (actual grout mixes may vary based on testing and documented experience).

	Estimated Batch Weights (yd^3)	
Material	Mix No. 1	Mix No. 2
Water	800 lb (96 gal)	433 lb (52 gal)
Cement (Type I/II)	680 lb	320 lb
Fly ash	1,600 lb	640 lb
Pumice sand	—	1,400 lb
High-range water reducer	Approx. 6 lb	Approx. 8 lb

5. IMPLEMENTATION

Debris containers will normally be filled with grout using a portable, skid-mounted grout mixer/pump. However, grout may be mixed in the Besser mixer and delivered to the grouting area using a transfer hopper. The following steps will be implemented to treat a container of hazardous debris.

- Verify total weight of each debris box and ensure that its contents are recorded on an On-Site Waste Tracking Form. Obtain weight and record if unknown.
- Have debris box surveyed and cleared for treatment by the radiological control technician.
- Install the access containment assembly.
- Cut a minimum of two holes—one each, on the top of the box at opposite ends, ensuring that holes penetrate any container liner material. Holes may be enlarged to access and cut through the liner.
- Visually inspect debris contents exposed in access holes to verify that debris is as stated on the profile.
- Install high-efficiency particulate air filter on one hole and access containment box on the other hole.
- Position hopper and grout pump assembly under the soil treatment mixer or stage to accept grout mixed separately.
- Mix grout in mixer.
- Dump grout into hopper/grout pump.
- Inspect grout to verify consistency using the operator's judgment. The grout should have a flowable consistency without exhibiting excess water. Reject grout if it does not meet these criteria.
- Insert discharge hose nozzle/stinger in the box holes via the access containment, and ensure that the nozzle extends below the liner.
- Check that the speed setting on the grout pump is positioned on the slow setting.

- Turn on the pump.

- Turn on the vibration device (either a clamp on external vibrator or a shaker table in which case the box will be sitting on the table). The vibration device may not be necessary as determined during process testing of surrogate waste.

- Monitor the flow of grout into container. Adjust pump speed, as necessary. Slow the pump speed to be used as the grout nears surface of box.

- Turn pump off when grout is within 3–10 in. of bottom of holes.

- If amount of grout added to box is determined to be less than expected (operator judgment), cut additional hole(s) in box and verify if grout is evenly distributed. Add more grout when needed.

- Allow grouted debris to set overnight. **Note:** *After grouted debris has set, top off debris box with second layer of grout, being sure not to overfill*.

NOTE: *Odd-sized boxes may not have custom-fitted grout frames. Spacer bars can be installed or these boxes can be grouted in shallow lifts (level of lift to be approximately 1/4–1/2 of the hydraulic head that could lead to box failure. An analysis will be required to determine lift depth for each different box type/size.*

- After final grouting and curing (time required will be determined from previous testing), remove box from brace and place box in storage for later placement into the landfill, when weather and scheduling permit disposal.

- Re-position hopper/pump assembly to treat next debris box and repeat above steps.

- Daily, when treatment is complete or delayed, thoroughly clean hopper/pump assembly. Discharge residual grout from hopper/pump into 55-gal drum(s) and collect rinse water in collection tank or dedicated lined container. After suspended matter in rinse water has settled, decant water into the decontamination bay's drain trench or contaminated equipment pad drainage trench. Reserve/stage solids from the collection tank in covered container for future treatment.

6. REFERENCES AND INTERFACES

40 CFR 268.45, 2005, "Treatment Standards for Hazardous Debris," *Code of Federal Regulations*, Office of the Federal Register, January 2005.

EDF-1730, 2002, "Staging, Storage, Sizing, and Treatment Facility (SSSTF), Debris Treatment Process Selection and Design," Rev. 0, Idaho National Engineering and Environmental Laboratory, March 2002.

EDF-2693, 2002, "Staging, Storage, Sizing, and Treatment Facility, Waste Box Grouting Frame," Rev. 0, Idaho National Engineering and Environmental Laboratory, March 2002.

7. RECORDS

The following are records:

- Waste profile sheets
- Integrated Waste Tracking System electronic records
- Operations log entries
- Work control forms.

Soil Stabilization

Preparer	Tracking No.
R. C. Shilkett	4.1
Date	Revision
May 6, 2003	0

1. PURPOSE

The purpose of this procedure is to provide the operating instructions for the INEEL CERCLA Disposal Facility soil stabilization process.

2. SCOPE AND APPLICABILITY

This procedure overview addresses the treatment of contaminated soil that exhibits the toxicity hazardous waste characteristic. This treatment process also may be used for sludge.

3. REGULATORY REQUIREMENTS

The following is a regulatory requirement:

- 40 *Code of Federal Regulations* (CFR) 268.49, "Alternative LDR Treatment Standards for Contaminated Soil."

4. EQUIPMENT

Soil stabilization will be performed in the treatment area of the decontamination building. The following is a list of equipment that will be used:

- Vertical lift and tipper unit
- Mixer unit
- Wheelabrator air scavenger system
- Bulk bag unloader
- Lined containers
- Forklift
- Pressure washer
- Miscellaneous hand tools.

5. IMPLEMENTATION

Soil stabilization will be performed in the treatment area of the decontamination building. The following steps will be implemented to stabilize the soil:

- Insert a self-tipping container under the mixer unit (pictured below). Ensure that the container has a barcode affixed to the outside and an On-Site Waste Tracking Form

- (OWTF) is generated. Ensure that the roll-up door that isolates the container is closed.
- When necessary, load a bag of premixed reagent whose composition corresponds to the recipe determined by treatability testing for the waste.
- Ensure that the barcode on each waste box corresponds to a waste stream that has an approved treatment recipe.
- Ensure that a radiological control technician surveys each waste box before opening.
- Remove the lid from the box of soil to be treated, if a lid is present.
- Secure liner to box, when possible.
- Visually inspect box contents to verify that the contents match the container profile.
- Load soil box into vertical lift/tipper assembly.
- Ensure that the Wheelabrator air scavenger dust-collection system is operating.
- Raise box and dump contents into the mixer unit.
- Remove emptied soil box.

- Inspect waste box for residual material that did not dump out of the box. Weigh and record the amount on the OWTF. Re-fasten lid and place in storage for a later consolidation campaign. If box is empty, remove OWTF and turn in at the Administration Office Trailer.

- Process the waste in accordance with the recipe and operation instructions identified in the treatability testing documentation. This process has previously been entered into the Besser Easy Blend Batching System.

- Open bottom discharge gate and unload mixture into the self-tipping container.

- Close discharge gate.

- Remove the container and collect sample of treated soil (sampling may occur prior to dumping from the mixer), as required. Samples will be composited for analytical verification that waste meets disposal criteria in accordance with the *Treatability Study Test Plan for Soil Stabilization* (DOE-ID 2003). If toxicity characteristic leaching procedure results indicate failure of waste treatment, waste may be subjected to additional treatability studies to determine a more appropriate recipe.

- Attach an OWTF to the container of treated soil.

- When the container is filled, remove from treatment unit, and consolidate with treated waste from the same waste stream into a common RO/RO to minimize the number of containers required. Place in storage for eventual disposal into the landfill..

- Clean the mixer unit, as required, following the manufacturer's recommendations.

A series of interlocks have been incorporated into the control system. These interlocks will either prevent start-up of an operation sequence or stop the operations until the condition is corrected. These interlocks include, but are not limited nor restricted to, the following:

Condition	Prevents Start-Up	Stops Process
Box tipper door open	X	X
Box tipper travel limit exceeded	X	X
Box tipper chain tension low	X	X
Box tipper hydraulic pressure low	X	X
Air Scavenger System flow low	X	
Mixer dump container not in place	X	
Mixer dump area access door open	X	X
Reagent feed material empty	X	X
Mixer motor speed and temperature out of tolerance		X
Mixer maintenance not up to date	X	

6. REFERENCES

DOE-ID, 2003, *Treatability Study Test Plan for Soil Stabilization*, DOE/ID-10903, Rev. 0, U.S. Department of Energy Idaho Operations Office, February 2003.

EDF-ER-296, 2002, "Process and Treatment Overview for the Minimum Treatment Process," Rev. 0, Idaho National Engineering and Environmental Laboratory, March 2002.

EDF-1542, 2001, "Staging, Storage, Sizing, and Treatment Facility (SSSTF) Stabilization Treatment Process Selection," Rev. 0, Idaho National Engineering and Environmental Laboratory, January 2001.

7. RECORDS

The following are records:

- Waste profile sheets
- Integrated Waste Tracking System electronic records
- OWTFs
- Operations log entries.

Wheelabrator Air Scavenger System

Preparer S. M. Edgett	Tracking No. ASS-1
Date April 5, 2004	Revision 0

1. PURPOSE

This overview outlines the operation of the Wheelabrator air scavenger system. Operation of this system will be incorporated largely into the general procedure to treat soil waste.

Specific portions of this overview that will be part of unique procedures for the Wheelabrator air scavenger system include:

- Replacement of self-cleaning filters
- Replacement and disposal of dust collection drums beneath the self-cleaning filters
- High-efficiency particulate air (HEPA) filter detailed operating procedure testing
- HEPA filter replacement.

2. SCOPE AND APPLICABILITY

This procedure overview is applicable to all HEPA filters in the decontamination building and to the Wheelabrator filtering system on the soil treatment system.

3. REGULATORY REQUIREMENTS

None.

4. EQUIPMENT

The following equipment will be used:

- Replacement filters (cylindrical and HEPA) and replacement bag-in/bag-out bags used for filter installation and removal
- Dust-collection drums
- Drum carts.

5. IMPLEMENTATION

Operation of the Wheelabrator air scavenger system is integrated into the operation of the treatment system. Additionally, it is monitored and regulated by its own controller. The system is started manually; however, the mixer, bulk bag unloader, and box tipper are all interlocked so that they cannot be started unless the Wheelabrator air scavenger system is also operating. The control logic ensures that the Wheelabrator air scavenger system is operational prior to lifting the bulk bag unloader, starting the mixer, or operating the bulk bag unloader. Malfunction of the system does not cause shutdown of the treatment process because once started, it only takes a few minutes to complete the process. Operating procedures will include a verification of proper system operation prior to initiation of treatment operations. The monitor/control system will provide alarms for significant operational deficiencies. An alarm controller monitors the system operations for normal flow and differential pressures. This system also automatically pulses the cylindrical filter banks to knock free collected dust as needed.

Bag-in and bag-out of the cylindrical self-cleaning filters will be performed in accordance with the vendor procedures. This will be performed when the alarm controller indicates the self-cleaning process was unsuccessful or that a filter has ruptured (low differential pressure).

When full, the dust-collection drums beneath the Wheelabrator filter unit will be replaced in accordance with the vendor-provided procedure. These drums are positioned in a sealed arrangement beneath the collection hopper of the unit. The valves or dampers isolating them are closed, the connection seal is removed and the drum (installed on a caster cart) is wheeled out, the lid is replaced, and the drum is disposed of in accordance with the *ICDF Complex Operations Waste Management Plan* (DOE-ID 2003).

The HEPA filters will be tested for filtration efficiency using the traditional detailed operating procedure-type test. This will be performed by Idaho Nuclear Technology and Engineering Center technicians that specialize in performing these tests. The test will be performed in accordance with Section 10 of American Society of Mechanical Engineers (ASME) N510, “Testing of Nuclear Air-Treatment Systems.”

The HEPA filters will be replaced using the bag-out/bag-in process provided by the vendor. Filters will be replaced when the magnehelic differential pressure gauges indicate a sudden decrease in differential pressure or when the pressure exceeds the specified limit. Degraded performance identified by the detailed operating procedure test may indicate a need to replace a filter.

A set of interlocks have been incorporated into the control system. These interlocks will either cause an alarm to notify the operator or shutdown the operation of a portion of the system and prevent restart of the Air Scavenger System for a subsequent operating cycle. These interlocks include, but are not limited to nor restricted to, the following:

- High filter bank differential pressure
- Pulsation bladder failure
- Pulsation valve seal failure
- Low air flow.

6. REFERENCES

ASME N510, 1989, "Testing of Nuclear Air-Treatment Systems," American Society of Mechanical Engineers, January 1, 1989.

DOE-ID, 2003, *ICDF Complex Operations Waste Management Plan*, DOE/ID-10886, Rev. 0, U.S. Department of Energy Idaho Operations Office, February 2003.

Abnormal Operating Conditions

Preparer	Tracking No. AOC-1
S. M. Edgett	
Date	Revision
April 5, 2004	0

1. PURPOSE

This overview outlines the various abnormal operating conditions and generally how they will be handled. This information may be incorporated into individual operating procedures specific to each system or documented as a separate procedure.

2. SCOPE AND APPLICABILITY

This procedure overview is applicable to the various Staging, Storage, Sizing, and Treatment Facility treatment systems.

3. REGULATORY REQUIREMENTS

None.

4. EQUIPMENT

The following equipment will be used:

- Besser Simen mixer
- Wheelabrator
- Bulk bag unloader.

5. IMPLEMENTATION

Besser Simen Mixer

Broken Mixing Arm—If a broken mixing arm is identified, continued operation may occur pending repair. This will be based on discussions with the supplier and mix homogeneity. A broken arm will be purchased and replaced as necessary.

Mixer Jam—This results in an automatic over-current shutdown or engineered shear failure of the shaft. The unit is shut down and dumped with the manual hydraulic override. The unit will then be washed before inspection for repair.

Mixer Mind Prevents Operation—Required maintenance (usually periodic adjustments or grease unit refill) will be performed and the Mixer Mind will be reset. Loss of hydraulic oil or a hydraulic oil high-temperature condition (if not fixable in less than 20 minutes) will require system shutdown with a load dump (manual if mixer is shut down).

Manual Dump—This entails the use of a hydraulic hand pump to open and close the door and possibly to manually rotate the mixer to complete the dump. It includes a washdown of the mixer to prevent material buildup after the dump is complete.

Wheelabrator

Alarm Response—The unit will usually not shut down when an alarm is received because it is in a safer condition to continue operation. Alarm response actions will range from verifying adequate instrument/pulsation air pressure to solenoid seal replacement or filter bank replacement and will include checking valve lineup, air availability, filter integrity, and filter replacement.

High-Efficiency Particulate Air Filters

Alarm Response—High- and low-pressure alarms will require response and evaluation. Both of these alarms can indicate the need for filter replacement.

Bulk Bag Unloader

Out of Product—The bag will be replaced.

Change of Recipe—The bag will be replaced and the contents of the unit will be emptied at the bottom by reversing operation.

Equipment Maintenance

Preparer P. J. Jessmore/R. Hanson	Tracking No. 7.1
Date April 5, 2004	Revision 0

1. PURPOSE

This overview provides the high-level maintenance that will be performed on the various pieces of equipment at the Staging, Storage, Sizing, and Treatment Facility (SSSTF). Detailed equipment maintenance requirements will be documented in equipment-specific procedures.

2. SCOPE AND APPLICABILITY

This procedure overview is applicable to the equipment listed below.

3. REGULATORY REQUIREMENTS

None.

4. EQUIPMENT

The following equipment will be used:

- Besser Simen mixer
- Bulk bag unloader
- Scales—truck and floor
- Wheelabrator air scavenger system
- Motor control centers
- Forklift.

5. IMPLEMENTATION

The SSSTF equipment will be placed on the subcontractor's maintenance schedule and will include at a minimum, the following:

- **Besser Simen Mixer** As recommended by the manufacturer, the mixer requires daily, weekly, and monthly lubrication when the unit is operating. This will only be required during operational periods (i.e., not during extended periods of standby or shutdown).

- **Wheelabrator Air Scavenger System** The pulsing system diaphragm will be checked and replaced in accordance with the manufacturer's directions. Other equipment maintenance requirements are contained in overview ASS-1.

- **Bulk Bag Unloader** Lubrication will be applied to the bulk bag unloader annually, as recommended by the manufacturer.

- **Scales—Truck and Floor** The truck scale will be calibrated annually by the Idaho State Department of Agriculture, Bureau of Weights and Measures. Calibration of the floor scale also will be performed annually.

- **Motor Control Centers** The motor control centers will be opened annually, inspected, and dust and dirt blown out of the interior.

- **Forklifts** Forklifts will be maintained in accordance with the manufacturer's recommendations.

Attachment 1

Design Basis

SPC-1481, "SSSTF Soil Stabilization System (SSS) Procurement Specification," Revision 0

See EDMS to view

SPC-1481 Revision 0

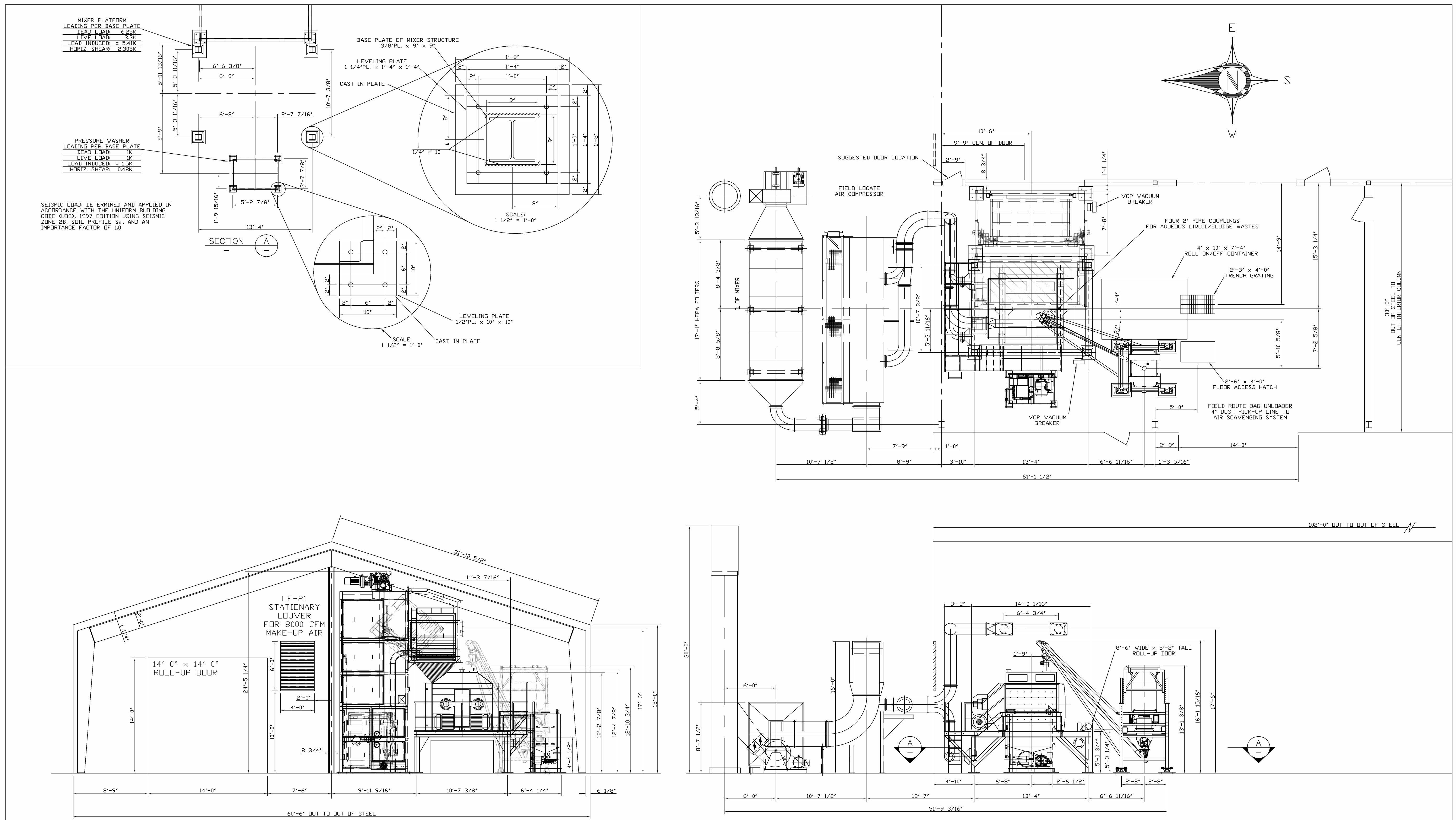
SSSTF SOIL STABILIZATION SYSTEM (SSS) PROCUREMENT SPECIFICATION

Attachment 2

Design Information

Attachment 2, Section 1

General Arrangement Drawing and Process Schematic



GENERAL ARRANGEMENT DRAWING
MAY BE SUBJECT TO CHANGE

BY	NO.	DATE	REVISION	BY	NO.	DATE	REVISION
	10			WJS	5	3-17-03	UPDATED BLOCKS / ADDED VCP VALVE
WJS	9	4-01-03	ADJ. LOUVER SIZE TO 8000 CFM	WJS	4	2-24-03	ADDED COUPLINGS TO MIXER
WJS	8	3-20-03	GENERAL REVISION	WJS	3	2-07-03	GENERAL REVISION
WJS	7	3-19-03	GENERAL REVISION	WJS	2	1-28-03	GENERAL REVISION
WJS	6	3-18-03	ADDED BAG UNLOADER TO SIDE VIEWS	WJS	1	12-19-02	GENERAL REVISION

MATERIAL SPECIFICATION
UNLESS OTHERWISE NOTED
STRUCTURAL STEEL - ASTM A36
HANDRAIL & POST - ASTM A53
GRADE B, SCHEDULE 40
GRATING/STAIR TREADS - ASTM A59
A.R. PLATE - AR400
SHAFTS - 1045 T.G.&P.

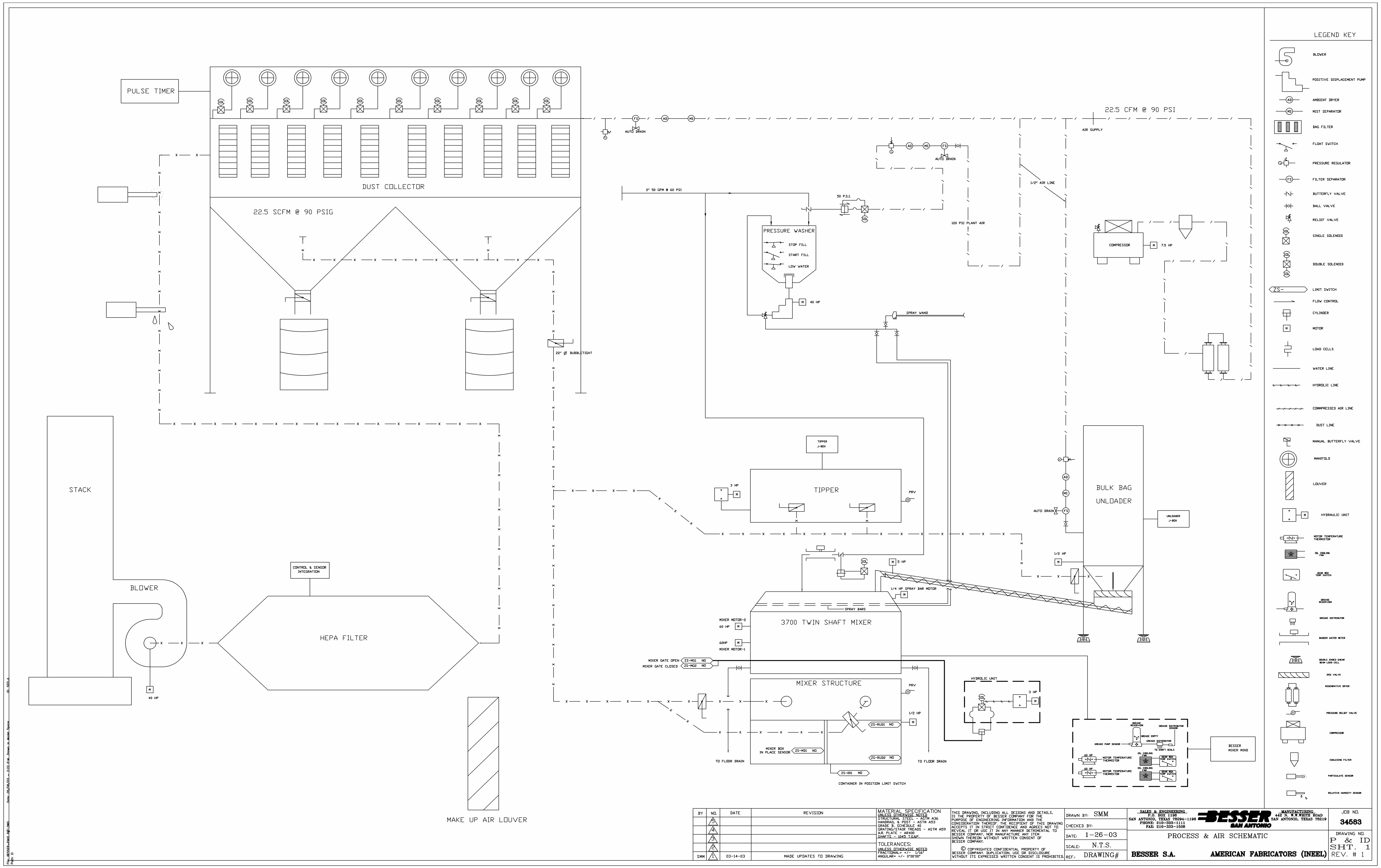
TOLERANCES:
UNLESS OTHERWISE NOTED
FRACTIONAL= +/- 1/16"
ANGULAR= +/- 0°00'00"

DRAWN BY: J. Deen
CHECKED BY:
DATE: 10-10-02
SCALE: 3/16"=1'-0"
REF.:

SALES & ENGINEERING
P.O. BOX 1198
SAN ANTONIO, TEXAS 78294-1198
PHONE: 210-333-1111
FAX: 210-333-1508
BESSER SAN ANTONIO
MANUFACTURING
442 N. W.W.WHITE ROAD
SAN ANTONIO, TEXAS 78219

GENERAL ARRANGEMENT OF
SOIL STABILIZATION SYSTEM
BESSER AMERICAN FABRICATION INC.

FILE NO. 34583
PROPOSAL NO. 34583-01
REV. #9


PULSE TIMER
DUST COLLECTOR
22.5 SCFM @ 90 PSIG
22.5 CFM @ 90 PSI
AUTO DRAIN
AIR SUPPLY
2" 50 GPM @ 60 PSI
50 PSI
PRESSURE WASHER
STOP FILL
START FILL
LOW WATER
40 HP
SPRAY WAND
120 PSI PLANT AIR
1/2" AIR LINE
COMPRESSOR
7.5 HP
22" Ø BUBBLETIGHT
STACK
BLOWER
40 HP
CONTROL & SENSOR INTEGRATION
HEPA FILTER
MAKE UP AIR LOUVER
TIPPER J-BOX
TIPPER
3 HP
PRV
BULK BAG UNLOADER
UNLOADER J-BOX
1/2 HP
5 HP
1/4 HP SPRAY BAR MOTOR
SPRAY BARS
3700 TWIN SHAFT MIXER
MIXER MOTOR-2
60 HP
MIXER MOTOR-1
MIXER GATE OPEN
MIXER GATE CLOSED
MIXER STRUCTURE
HYDRAULIC UNIT
MIXER BOX IN PLACE SENSOR
ZS-MD1 NO
ZS-RUD1 NO
ZS-RUD2 NO
ZS-001 NO
CONTAINER IN POSITION LIMIT SWITCH
TO FLOOR DRAIN
GREASE PUMP SENSOR
TO SHAFT SEALS
MOTOR TEMPERATURE THERMISTOR
OIL COOLING FAN
GEAR BOX TEMP SWITCH
BESSER MIXER MIND
LEGEND KEY
BLOWER
POSITIVE DISPLACEMENT PUMP
AMBIENT DRYER
MIST SEPARATOR
BAG FILTER
FLOAT SWITCH
PRESSURE REGULATOR
FILTER SEPARATOR
BUTTERFLY VALVE
BALL VALVE
RELIEF VALVE
SINGLE SOLENOID
DOUBLE SOLENOID
LIMIT SWITCH
FLOW CONTROL
CYLINDER
MOTOR
LOAD CELLS
WATER LINE
HYDROLIC LINE
COMPRESSED AIR LINE
DUST LINE
MANUAL BUTTERFLY VALVE
MANIFOLD
LOUVER
HYDRAULIC UNIT
COALESING FILTER
PARTICULATE SENSOR
RELATIVE HUMIDITY SENSOR
BY | NO. | DATE | REVISION
SMM | 1 | 03-14-03 | MADE UPDATES TO DRAWING
MATERIAL SPECIFICATION
UNLESS OTHERWISE NOTED
STRUCTURAL STEEL - ASTM A36
HANDRAIL & POST - ASTM A53
GRADE B, SCHEDULE 40
GRATING/STAIR TREADS - ASTM A59
A.R. PLATE - AR400
SHAFTS - 1045 T.G.&P.
TOLERANCES:
UNLESS OTHERWISE NOTED
FRACTIONAL= +/- 1/16"
ANGULAR= +/- 0°00'00"
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DATE: 1-26-03
SCALE: N.T.S.
REF.: DRAWING#
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PROCESS & AIR SCHEMATIC
BESSER S.A.
AMERICAN FABRICATORS (INEEL)
JOB NO.
34583
DRAWING NO.
P & ID
SHT. 1
REV. # 1